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MAGIC LANTERN

JOURNAL

And Photographic Enlarger.

A Magazine of Popular Science for the Lecture-Room and the Domestic Circle.

WITH WHICH IS INCORPORATED THE "LANTERN WORLD."

EDITED BY J. MAY TAYLOR.

Vol. 10.—No. 118. MARCH, 1899. [Entered at Stationers' Hall.] Price 2d., Post Free 3d.

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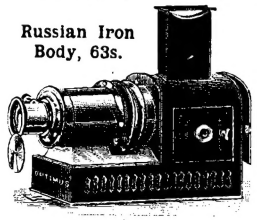

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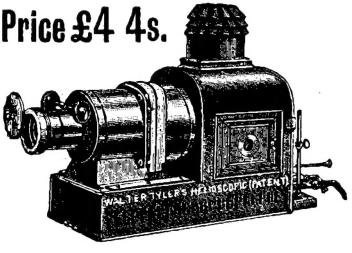

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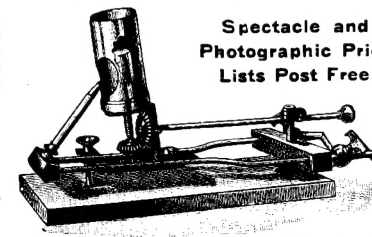

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EDITED BY J. HAY TAYLOR.
MAGAZINE OF POPULAR SCIENCE FOR THE LECTURE-ROOM AND THE DOMESTIC CIRCLE.
Entered at Stationers' Hall.
1889

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NOTICES.

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12 months, 3/-. United States, 75 cents.

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SMALL ADVERTISEMENTS must reach the office not later than the first post on the 24th of each month. All cheques and postal orders to be made payable to the Magic Lantern Journal Company, Limited.

EDITORIAL communications must be addressed, **J. HAY TAYLOR**, Advertisements and business communications to **THE MAGIC LANTERN JOURNAL COMPANY, Limited, 9, Carthusian Street, London, E.C.**

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NOTES.

Silhouette Slides.—In this and the two previous issues of this Journal will be found interesting particulars pertaining to the making of these slides. The inventor, Mr. Theodore Brown, Portland House, Fisherton, Salisbury, in giving manufacturers permission to make such slides for the market, says:—"All the slides here described are of new and original construction, working models of each having been made and tested before publication. Manufacturers will therefore find them to be thoroughly practicable, and if they desire to make them for the market they are at liberty to do so, provided a sample is sent to the inventor by way of acknowledgment."

◆ ◆ ◆

Teaching Lantern Manipulation.—Early last month an exceedingly useful demonstration was given at the North Middlesex Photographic Society by Mr. H. Stuart, the hon. secretary. He explained in an instructive and practical way the manner of manipulating the lantern, including the use of the gauge for ascertaining the amount of gas in cylinder, method of using blow-through jet with and without the regulator, the manipulation of the mixed jet, and the

proper centering of the light. As the various stages proceeded members were invited to try each manipulation for themselves, many of whom availed themselves of the opportunity. The evening's demonstration was voted one of the most successful given before this society.

"After Dark" Studies.—The method by which Mr. Paul Martin's slides of "after dark" studies were lately projected at a lantern exhibition is well worthy of being followed. The lantern was fitted with an orange coloured glass, which greatly enhanced the gas-light effect intended to be represented.

"Wilson's Photographic Magazine."—The offices of this American magazine have been removed from 853, Broadway to 289, Fourth Avenue, New York.

New Cinematographic Department.—In addition to his extensive lantern and slide business, Mr. H. Luscombe Toms, of 78, Queen Victoria Street, E.C., has added a department in connection with the cinematograph, and is also prepared to give exhibitions with this instrument.

Honours for Professor Rontgen.—Professor Rontgen, whose name is associated with X rays, has been called to the Chair of Physics at the Liepsic University from the University of Wurzburg.

Weaving a Photographic Print.—A very interesting article on this subject, by Mr. Thomas Bolas, F.C.S., F.I.C., appears in the *Amateur Photographer* for January 27th. Several illustrations accompany the text.

The Cinematograph and Birmingham Town Hall.—The committee controlling the Birmingham Town Hall has decided to allow no cinematographic exhibitions therein, as the insurance rates would be considerably increased if any form of cinematographic apparatus is used.

"Practical Pictorial Photography."—In our issue for August last we stated the first part of this book had been published, and contained a statement of the theories which govern pictorial work in photography. The second part has now been published (1, Creed Lane, E.C.), and contains types and examples showing the application of the practice and theories mentioned in the former part. It cannot fail to be of great interest to lovers of art.

Optical and Mechanical Effects for the Lantern.—No. VII.

By EDMUND H. WILKIE.

(Late Royal Polytechnic Institution).

AT the conclusion of last month's article I promised to show how the waves can be made to break on the shore, to turn over, burst into spray, and retire. This is a very unusual motion on the screen, and is entirely unknown to the generality of exhibitors. In order to give a suitable background upon which to throw the effects to the best advantage, a night scene should be chosen, and it may be mentioned in passing that some of the instantaneous water studies published at the present time would be

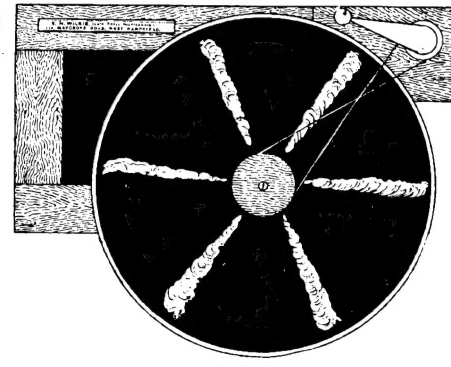

Fig. XXIII.

particularly suitable for the introduction of such effects, and if the moon is shedding its pale beams over the scene so much the better, as the broken water of the bursting wave can then be brightly illuminated by its silvery light.

At the late Royal Polytechnic Institution, an entertainment was produced by the late Mr. George Buckland entitled the "Invisible Prince," and in this subject the first wave effect was introduced, and may be realised in the following manner. It consists of three slides in addition to the foundation picture, and for its perfect exhibition four lanterns were requisite working together at the same time. At Fig. XXIII. we have the first of the three effects,

GENERAL ADVERTISEMENTS.

A PROFESSIONAL lanternist and cinematographist of great experience is open to engagements, with or without his own apparatus, in town or country, on very moderate terms. Reference, Editor of this Journal. —Address, Optics, 13, York-street, Walworth, London.

CINEMATOGRAPHS.—The sensation of the day; Rateau's patents are to be sold to best offer.—See General Advertisements.

LANTERN slides.—Express trains in motion:—Flying Dutchman (G.W.R.), Flying Scotsman (G.N.R.), Pullman Express (L.B. & S.C.R.), Boat Train (L.C. & D.R.), and others; price 1s. each; postage extra.—F. Moore, 9, South-place, Finsbury, London.

STEDMAN-BROWN oxygen generator, nearly new, £4 10s. Also quantity of high-class slides by West, Newton, etc., 4s. 6d. doz., plain; 6s. 6d., coloured; MSS. lectures if required.—E. Thorne, 408, New Cross-road, S.E.

WANTED to exchange lady's cycle (perfectly new) for first-class bi-unial lantern and accessories.—Shotton, St. Peter's-street, Burton-on-Trent.

KHARTOUM occupied and Gordon avenged.—Fine set of 50 artistically coloured slides by York & Son, with lecture; cost £5; accept £3, or exchange.—J. R. McLean, 21, Rossie-street, Arbroath.

500 GOOD plain photographic slides, 4s. 6d. doz.; hand painted, 9s.; sample and list, 6d.—Holloway, 125, Bailey's-lane, Stamford Hill.

MAHOGANY bi-unial, with blow-through jets, dissolver, carriers, etc., in case complete, £6.—Wood, 53, Credon-road, Rotherhithe.

CINEMATOGRAPHS.—Rateau's patents to be sold. 5,026 of 1897, principal claim, backward movement of the film; property of Mr. Rateau by comptroller's decision, and the only principle which ensures correct registration—absolutely necessary for the perfect steadiness and clearness of the picture on the screen, especially with amateur size. 18,014 of 1897, automatic camera; only to press the button, etc.; numerous valuable claims —compound shutter to avoid flickering, speed regulating device, etc. etc. 21,191 of 1898, a marvel in projecting apparatus for constructional improvements. The purchaser will receive free a list of good customers, the addresses of several hundred persons intending to purchase a Rateaugraph; several orders in hand; some new good ideas or improvements relating to animated photography and apparatus for same; drawings for a large apparatus for a theatre (size of pictures 3 in. by 2½ in.). Patents are to be sold to best offer. Very suitable for scientifical instrument engineer who having tool-machines will be certain to realise from to-day not less than £500 net profits per annum, and a fortune if the business is developed with sufficient capital; Rateau's principles in animated photography being now the only which permit to make an apparatus for theatre; better than all seen until this date.—Address offers by letter to A. Rateau, 17, Holborn, E.C.

BARGAINS; clearing out; 200 full size lantern slides, comics, Scripture, etc., only £3 15s.—Fred Terry, 40, Landcroft-road, London, S.E.

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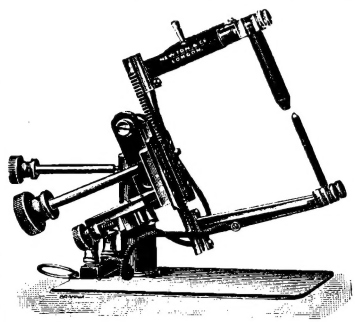

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NEW designs; a beautiful series of figure pictures and "Angel" effects in the finest hand work; special Scripture subjects suitable for Easter, "Our Lord in the Garden of Gethsemane," with appearance of an Angel, one of the most beautiful effects of a sacred character ever produced; the treatment is tender and reverent, and this picture and effect is confidently recommended to the notice of clergymen and others. Only a limited number of this subject can be supplied before Easter, therefore it is requested that orders should be forwarded at the earliest possible moment.—Edmund H. Wilkie, as below.

HOWTH Lighthouse, with ray of light to revolve horizontally round it, passing at will either across the foreground or behind the rocks and lighthouse; an entirely novel and original mechanical motion invented by E. H. Wilkie, simple and easy to manipulate, the most striking and realistic effect ever designed for the lantern; send for lists.—Edmund H. Wilkie, as below.

EVERY class of photograph colouring with special atmospheric effects, equal to hand painting; artistic work of the highest excellence; hand paintings from any copy or written description; photographic slides prepared from snapshot negatives of any size; send for list of effects.—Edmund H. Wilkie, as below.

ORIGINAL mechanical and dissolving effects a speciality; reproductions of the grand effects as exhibited at the late Royal Polytechnic Institution on any scale; novelties in the finest work for advertising purposes, lecturers, theatrical exhibitions, or scientific demonstrations.—Edmund H. Wilkie, as below.

SINGLE lantern effects; the whole of the movements and changes on one slide, producing effects hitherto impossible in single lanterns; a great novelty; invariably give the greatest satisfaction; send for special list.—Edmund H. Wilkie, as below.

BARGAINS.—Second-hand beautifully painted effect set "The Grotto of Calypso," with mechanical effects, three slides, condition as new, perfect register, cost £4 10s., price £3; a Noakes' triple dissolving tap, in perfect working order, with bye passes and side tubes for back of lantern, condition as new, cost 63s., price 35s.—Edmund H. Wilkie, as below.

A BOON to lanternists.—To produce the best results on the screen use only Wilkie's Solar flint limes; these are made with the greatest care from the hardest lime in the world, and produce an intensely concentrated pure white light of immense penetrative power; in air-tight tins, containing one dozen, 2s. 9d., post free; after using these superb limes lanternists will never be content with any other; unequalled for cinematographic work.—Edmund H. Wilkie, as below.

GREAT bargain.—A chance which seldom occurs; Edmund H. Wilkie has been favoured with instructions to dispose of at once the following magnificent piece of apparatus; miniature triple lantern by a well-known London maker, with special metal and asbestos lining, patent apparatus for registering from the back of lantern, registering stages with mechanical fine adjustments, 4-inch condensers, 6½-inch double combination achromatic object lenses which slide into rack jackets, highly finished brass fronts with draw tube, gas arrangements on back consist of leading tubes for gases, three 4-way disolvers to which are attached patented apparatus for cutting off the light from the glowing lime when dissolving, three bright brass blow-through jets, three mixed gas jets, arrangements for curtain at back of lantern, etc.; the body is built of mahogany with walnut doors and mouldings and the whole is fitted into a stained and polished case, having side door in addition to space with compartments and rising lid on the top; this case looks sufficiently ornamental to stand in any room and forms stand of convenient height for lantern; must be disposed of immediately in one lot, so no reasonable offer will be refused; cost as it stands £62 10s.; half price or even a little under would be accepted from an immediate purchaser.—Edmund H. Wilkie, 114, Maygrove-road, West Hampstead, London.

EFFECT slides painted to order, from 3 inch to 10 inch or 12 inch diameter, for high-class dioramic exhibitions; hand-painted and coloured photos also made from owner's negatives and drawings, etc.; list of standard effects 1d., free.—Wilkinson & Co., Slide Makers, Wholesale Opticians, Sunderland.

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and it was by means of this that the most important motion, namely, the turning over of the wave, was effected.

The frame of the slide is entirely fitted with a blackened glass only, the shape and size of the wave in the picture being left white; this was then painted to represent a wave in the act of turning over, just as we see them on the sea shore, and in front of this a large circle of the proportion shown in our diagram was revolved by means of a pulley and band.

At intervals on this wheel were painted other waves also just bursting, and which were in such a position that they exactly registered with the wave on the fixed glass at certain positions in their revolution, and it was this motion of one passing the other that gave the effect of the wave turning over. The whole body of the revolving disc of glass was, of course, blacked out, and, as the disc revolved, these images of waves passed one over the other, but the effect was first visible at the extreme right-hand corner of the wave; and, as the large circle travelled round, the bursting effect was continued straight across from right to left.

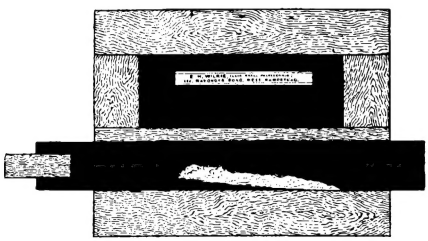

Fig. XXIV.

This accounts for the first portion of the motion, but it is not the whole of it. At Fig. XXIV. we see a mechanical slide, which supplemented the revolving wheel. When the wheel had turned the wave over, its duties were completed and the opaque portion of the slide cut off—the painted wave; but immediately this happened the operator at lantern No. 3, who was watching for this moment, drew the long slipping glass in Fig. XXIV. from right to left, and caused the spray and broken water to rush up on to the beach in a churned up mass, and directly he had reached the end of his tether, an operator at lantern No. 4 actuated a similar slide, but painted in a reverse direction, and caused the broken water to retire, when they all three pulled the shutters over their objectives for a moment to restore the movements to their original positions in readiness for the next wave. These motions it will be seen would be worked at a fair rate of speed, and continued indefinitely.

Now, although this is a very unusual and striking effect, I do not for a moment commend it as a perfect illusion; however talented the artist, however careful and painstaking the operators, there is often a "woodenness" in wave motions which detracts very considerably from the success of the illusion, but as a striking and unhackneyed effect it would be difficult, if not impossible, to improve upon this.

In describing this effect it will be noticed that stress is once more laid on the fact of the foundation picture being quite dark, while the effects are kept quite brilliant and as luminous as possible in order to show more strongly. This would appear to be so simple a matter that it could safely be passed by without notice, but quite recently the writer has seen effect sets painted by really good artists in which this fundamental principle has been lost sight of and neglected. Owing to this, the effects appeared weak and unsatisfactory.

One of the most beautiful and artistic of the sea effects is without

mechanical motions

of any kind, and represents a "Sunrise at sea," the first view showing the scene as a dark night and the other slides dissolving on in succession gradually realise for us the grandeur of sunrise, with its accompaniments of glowing colours and illuminated clouds.

In an effect of this character the subject is of course almost all sky, the water playing a subordinate and unimportant part, and could very easily be omitted altogether, but even the line of the horizon is a relief to the eye, and seems to "fix" the picture in our minds and to give us something to judge distances by and place the sky effects in perspective. This effect, prepared by a really talented artist, should be a mass of glowing colours, and with respect to these colours I may perhaps be permitted to say a word or two.

On one or two occasions, when submitting coloured photos and hand paintings for inspection and possible purchase, the remark has been made, "Yes, very nicely finished. A good picture, but these colours are too bright, they are unnatural." Now apart from the fact that a certain amount of brightness of colour is lost when 3 inches square of coloured glass is made to cover a space of 20 feet square, this is an entire mistake. Speaking from the experience

gained by considerable artistic training, the writer feels it impossible to lay too much stress on the fact that no colours at the command of the artist are really bright enough to represent the sunset as we see it in nature, but they must be the right colours, otherwise crude and unreal effects will result.

(To be continued.)

The Advantages of Plate Backing.

By EDWARD DUNMORE.

IT has been proved over and over again that backing plates with suitable pigments confers certain good qualities on the negative image otherwise unobtainable, and altogether absent from unprepared plates unless the glass itself is coloured, a condition out of the question for ordinary negative work.

The advantages of this treatment being so very pronounced, it is somewhat strange that photographers seem so reluctant to adopt it, except in special cases; even then it has only been looked upon as a definite gain in recent years, if we except certain makes of plates that were sent out long before gelatine films came into general use, such as some of the Liverpool dry plates and Colonel Stuart Wortley's uranium plates, one of which had a coating of red brown pigments and the other had a stained film. It may be interesting to enquire into the causes that have so long delayed its general adoption. In the first place, I think the imaginary difficulty of doing it; secondly, the messiness supposed to be engendered; and thirdly, a doubt as to the value of the extra trouble. All these reasons are to anyone who has regularly backed his plates barely worth notice; the troubles and messiness are very little, and the value of the results unmistakable.

Of course, in stating this, the kind of backing has to be considered, which may be good, bad, or indifferent, and fulfil wholly or only partially the duties it is expected to perform, or it may even introduce troubles on its own account.

A good and properly prepared backing is one that will cover the back of the plate with a uniform layer of colour which will reflect only non-actinic lights on to the film, that is easily removable, innocuous in the developer, and so adhesive that no particles will become detached and get on to the surface of the plate, causing defects, with any amount of ordinary handling.

Being provided with a backing of this sort it is applied by brushing or rolling it over the plate to within about half-an-inch of the edges, and letting it dry—a simple easy process, as free from trouble and messiness as a process can very well be, and one to which, after trying most kinds, I give the preference. Other methods of backing, equally effective, consist of coating the plate with asphalt varnish or coloured collodion. The objection to asphalt varnish is the difficulty of removal and the longer time it takes to dry. With collodion coating, the danger of its running over the edges of the plate, and so damaging the film, is the chief objection; otherwise the results are as good with one plan as with the other.

When we clearly understand the cause of the faults we desire to remedy, we are in a better position to know what to expect from the application of any backing material. The terms halation and blurring are often used indiscriminately, although the cause of each is distinctly different; both effects may co-exist on the same spot, or be entirely distinct on different portions of the negative. Halation is generally understood to be actinic light reflected from the inner surface of the plate after having passed through the film, and so on to the film again at a slightly different angle dependent on the density and thickness of the glass support; whereas blurring is produced by the strong illumination of particles of dust in the atmosphere. When t e

light and shade

are so situated with regard to each other that the illuminated particles of dust relieves against the strong shadow of the subject, also in a slight degree in the lateral dispersion of the light in the substance of the film itself a source of trouble. Staining the film of an orange colour has been tried, but found unsatisfactory on account of interfering too much with the rapidity of the plate to obtain the greatest success. The refractive index of the backing should be the same as the glass itself, and always in optical contact with it. It must be remembered that however good the colour of the backing, unless it is in optical contact with the glass the advantages of the colour are entirely neutralised; on this account prepared paper and other tissues pressed on to the back of the glass are seldom satisfactory, for it is quite impossible to see when perfect contact is obtained.

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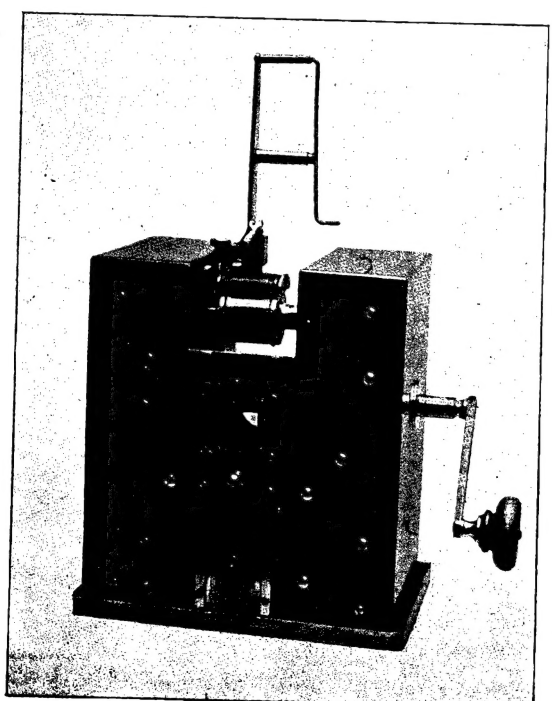

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sensitive plate this is, of course, out of the question. A backing painted on is therefore imperative; caramel and burnt sienna form a colour excellent for the purpose. These substances made into a proper consistency with diluted spirit and a little gum to give the necessary adhesive quality leave nothing to be desired.

The charge of being a messy process depends very much on the operator; he may make it so or not according to his own deftness. Provided with a damp cloth and a

bowl of water

there is not the least difficulty in removing the colour, or the plate may be put just as it is into the developer and the backing washed off under the tap afterwards—it is a mere matter of choice. I give the preference to its rough removal with a damp cloth previous to development; however, it is of little consequence one way or the other.

Now, what are the advantages we gain from this treatment of our dry plates? It has been remarked that in gelatine films there is always a tendency to reversal of the image, as well as to halation and blurring, which is common to both collodion and gelatine, and the more sensitive the film the more pronounced the effect. No backing whatever will prevent reversal of the image or do more than modify blurring, but will wholly prevent the halation caused by reflection—the most objectionable result with ordinary exposure.

As reversal is the result of over-exposure, the remedy for this especial fault is obvious; at the same time this tendency is slightly retarded with backing, which is all that can be said for it.

Blurring, as I have already explained, is the natural result of illuminated dust under certain conditions, and will take place on paper negatives where there is no possible chance of reflection. If we notice a ray of sunlight passing through the side window of a large room its course is distinctly defined, and all objects behind it are hidden. When such rays are in front of the observer it produces merely a blurring of all objects near, without showing the straight lines as in the first instance, which results in the whole or partial obliteration of such near objects; but it may be remembered if this effect is produced on the negative it may be seen by the eye at the time of taking the photograph if it is not visible to the eye, and yet takes place on the negative. It is caused by reflection from the back of the plate, and in a lesser degree by the lateral transmission of light from particle to particle in the film itself. This explains why under apparently similar circumstances the blurring or halation varies in intensity. Blurring is often caused by strong light falling on the lens, and being reflected from the lens and mount itself; in this case backing the plate is powerless to prevent the fault. A typical case of this kind is when the reredos of a church has to be photographed with a strong light through a window immediately above it. To get such a subject clearly the lens must be shaded, so as to cut off the image of the window above, when it will be immediately seen on the focusing screen that the image of the reredos has become clear and distinct. Whenever a strong top light exists and is not required on the picture, shading the lens from its action will always improve the results. Hoods and sky shades are invaluable in this connection.

Backing the plate is especially useful when white or very light objects have to be dealt with; such, for instance, as white lace on a white dress or any very light drapery. It will be found that the shadows of the folds are much improved, and the whole contour is sharpened up and cleared, that would without this precaution be one mass of almost indistinguishable pattern, and the texture of the material quite obliterated wherever the light falls strongly. In such cases we notice the difference backing makes most easily, but there is no doubt that all subjects are improved by it; at the same time, such striking effects may not be readily discerned in any greater degree than when a more clear and

brilliant negative is produced.

With regard to negatives for lantern work, there is a wonderful improvement in effect in the enlarged image if transparency and negative have been both backed. I have such a strong liking for backed plates that I would say it was quite impossible for many subjects to be perfectly rendered if it is omitted, no matter how skilful the manipulator may be.

One caution may be given in drying the plates after treatment, and that is to dry them in absolute darkness. If, as usual, they are set face to the wall in an ordinary dark-room light, although it may be but little but long continued, it is quite possible that it may act through the coating where it happens to be very thin and produce streaks on development—such thinness as produced by brush marks, and easily recognised as such. I therefore recommend drying in the dark if more than a few minutes are required for the purpose.

*About Animated Photography.**

I.—How Animated Photographs are Taken.

THE art of animated photography may be divided broadly into two great sections—(1) The analytical photographic process by which a record is made of the movements that it is desired to preserve, and (2) a synthetical optical process by which this record is made to reproduce a more or less exact simile of the original movements. The process of analysis consists in separating all the elements or phases of a movement, and photographing each phase upon separate photographic surface. For convenience these little photographs are made one above the other on a continuous strip of sensitive photographic material. The synthesis is accomplished by projecting these little pictures one after another very rapidly upon a screen by means of an optical lantern. The change from one picture to the next being too rapid for the eye to appreciate, the effect appears to the observer to be continuous. The pictures, however, are all different in certain respects, and the changes are noted by the observer, who thus becomes conscious of the appearance of motion as if he were looking at the original moving object.

In order to make possible the production of these series photographs in a

practical manner,

various apparatus for the purpose have been placed on the market. They are all alike in general principle. The photographs are made upon a strip of celluloid sensitised with a coating of gelatine dry-plate emulsion of the most rapid quality. The strip of film is wide enough to accommodate one picture and also a row of little holes on the hither side by which its position is shifted from time to time in the camera. The standard breadth is $1\frac{1}{2}$ inches, the picture occupying 1 inch, and the remaining half being divided between the two rows of holes. The strip of film is long enough to accommodate several hundreds of the little pictures one above the other as close as they will go. Those of the standard size are $\frac{3}{4}$ inch in height, and therefore 80 feet of film will give room for 1,200 separate impressions, and that is an average length and quantity.

The photographic apparatus—of no matter of which make—consists of a photographic lens of large aperture so that it will work with the shortest possible exposure, and of a focal length appropriate to the size of picture to be made so that the angle included shall be suitable to the work in hand. Usually a focal length of about 3 inches is adopted, but it may be longer or shorter for special work. Behind the lens is a rotary shutter with a small aperture in it so that the lens is covered and uncovered again many times in a second at definite intervals. The speed at which the pictures are taken is usually about 15 or 20 in a second—preferably the latter—and as the shutter opening is as a rule only about a twentieth of the complete circle, each picture receives about the $\frac{1}{400}$ of a second exposure. Behind the shutter at the correct focal distance of the lens is the guide for the sensitive film, and in combination with the rest of the instrument is a

mechanical device

by which the film is shifted forward by a distance corresponding to the height of the pictures. Thus the film is stationary at the moment that the aperture in the shutter passes over the lens and then it receives an impression of any objects that happen to be in front of the camera. As soon as the lens is covered again the film moves forward far enough to present a fresh surface to the action of the light the next time the lens is uncovered. In short, the whole thing is like a camera fitted with a roll holder carrying sufficient for 1,200 exposures and fitted with a mechanical arrangement for making the exposures and changing the film at the rate of 20 or more in a second.

When using a camera for animated photographs precisely the same conditions have to be observed with regard to lighting, and so on, as must obtain when successful results are to be secured with an ordinary hand camera. The light must be good—generally speaking direct sunlight is a *sine qua non*—and the operation must be restricted to those hours in the day when the light is at its brightest. Only open air subjects can be attempted with any reasonable prospect of success, and then only in summer unless the subject be particularly well lighted.

As regards choice of subject, that is always a matter of individual taste and possibility, but it will at once be seen that the class of subjects suitable for animated photography is rather different from that which is available for ordinary camera work. It is not merely the position or expression of a moment that has to be caught, but a whole series of movements which in some cases may be rehearsed beforehand, and in others the photographer knows not what the next turn of his handle may bring forth.

(*To be continued.*)

* *Photo. Times.*

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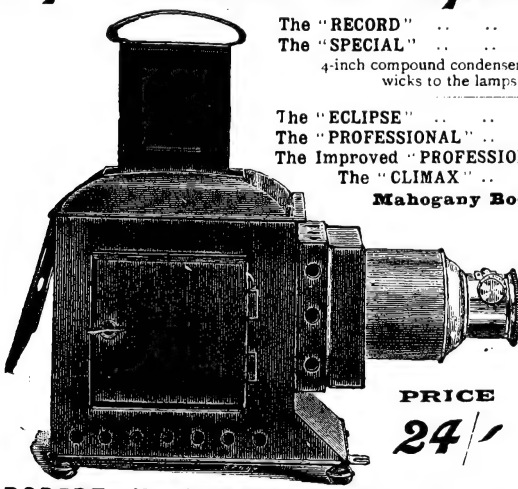

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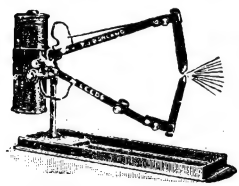

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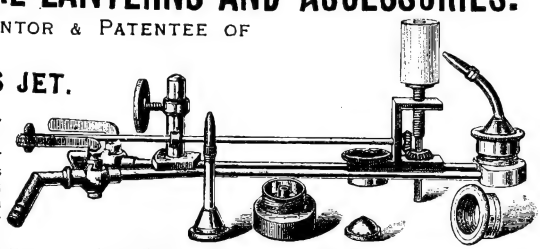

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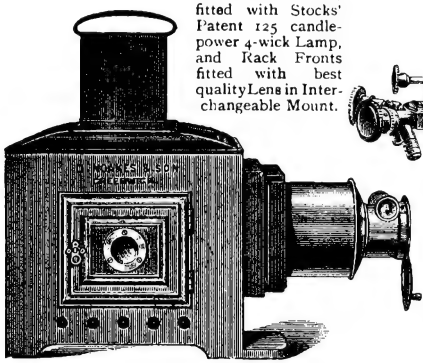

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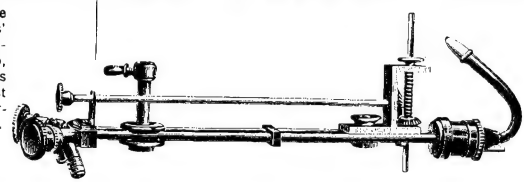

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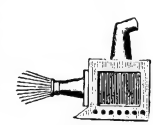

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Shadowgram or Silhouette Slides for the Optical Lantern.—No. III.

By THEODORE BROWN.

All the slides here described are of new and original construction, working models of each having been made and tested before publication by the author. Manufacturers will therefore find them to be thoroughly practicable, and if they desire to make them for the market they are at liberty to do so, providing a sample is sent to the inventor by way of acknowledgment.

CONTINUING the series of mechanical shadowgram or silhouette slides, commenced in the January number of this Journal, I shall endeavour to give particulars of only those slides which will be most likely to prove of material value, not only to the amateur worker, but also to manufacturers of lantern appliances in general.

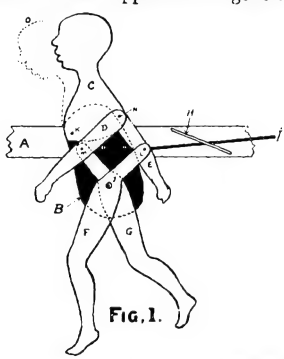

FIG. 1.

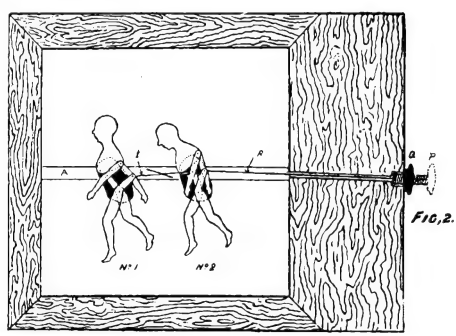

FIG. 2.

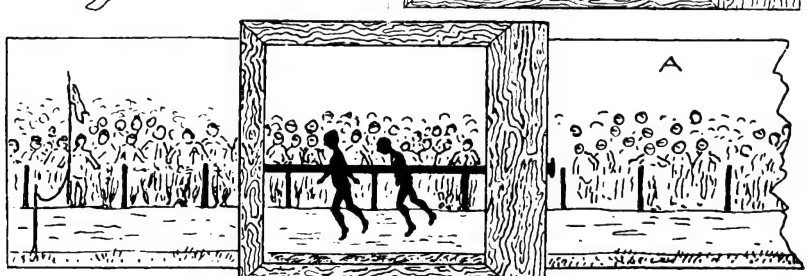

Fig. III.

The object of the present illusion is to produce the effect of a flat race, in which two black men are competitors. As the alternate movements of both are exactly alike, I need only particularise the construction of one, and for this purpose I would refer to diagram Fig. I. This figure of a man may be made either of tin or thin brass. The body, indicated by the black portion at B, is permanently fixed to a wooden bar A by means of screws. Two stationary pivots J and K connect the legs F and G and the head C to the body. Three other pivots L M and N, working quite independently of the body, regulate the action of all the moving parts. The pivot L is formed by the end of a wire rod I, the play of which is limited by a staple H fixed to the bar A.

Now it is obvious that if the rod I is pressed from its present position in Fig. I., from right to left, the head of the figure will be thrown forward until it occupies the position of the dotted lines at O, the arms will close in towards the body, the legs will cross each other, and finally the attitude of the man will be that of No. 2 in Fig. II.

Two of these figures, No. 1 and No. 2, Fig. II., are now fixed to one and the same wooden bar, A, and then linked together by a wire rod, I,

and they are further brought into connection with a press knob, Q, by means of a second wire rod, R, passing through the framework of the slide and fitted with a spring in the manner shown. In the diagram the knob is shown pressed in, and the dotted line at P indicates its position when the pressure is taken off.

The framework, Fig. II., must be provided with grooves capable of receiving a slip of glass and allowing it to slide through. On this glass, A, Fig. III., a number of spectators are painted standing by the side of the track over which the racers are apparently running. A row of black posts are also painted, without a rail (this is formed by the bar A, Fig. II., and appears to move, together with the posts, as the strip of glass is passed through). Now if the operations are carried out properly the effect will be most lifelike and the illusion complete.

Place the slide in the lantern with the starting point end of the movable glass showing behind the racers. Now start the racers by giving rapid taps to the press knob, Q, at the same time pushing the long glass gradually through the framework in an opposite direction to that in which the racers are supposed to be running, till the end of the glass is finally reached by the racers.

The effect thus produced will be similar to that experienced when looking through the window of a railway carriage in motion, and noticing a man running along the platform in the same direction as that in which the observer is travelling. Hence the object of the illusion has been secured in a simple but comprehensive manner.

———:o:———

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The agency in this country for Birassol has been taken up by Mr. Oscar Scholzic, Dashwood House, 9, Old Broad Street, London, E.C. Birassol is a sensitising fluid, with which paper or card may be coated, and when dry printed from, there being no toning or dark-room required. The paper, having been brushed over with the fluid and allowed to dry for a few minutes in the dark, can then be placed in a frame behind a negative and placed in bright light from 10 to 15 minutes. All that is then necessary is to place the picture for a minute in the following solution :—

Sulphite of soda	50 grs.
Hypo	50 grs.
Water	5 ozs.

After this it is rinsed in water for 10 minutes and dried.

THE WOTAN ACETYLENE LAMP.

From Messrs. Unger and Hoffmann, Reissiger-strasse, 36, Dresden, Germany, we have received one of their new acetylene lamps for use with the lantern. This lamp, which is termed the Wotan, is formed not unlike the letter L, as will be seen from Fig. I. The lower projecting portion on which the burner part is fixed is made so as to slide into the body of the lantern, while the other portion forms the back to the lantern. In the sketch, 1 represents the cover of the gasometer proper, 2 the cover of the filtering chamber, 3 tap for controlling gas to burners, 4 lid of chamber for calcium carbide, 5 tap for regulating water supply, 6 knob for adjusting the reflector. Many of the parts will be better understood from the sectional drawing, Fig. II., which we have prepared the better to illustrate the principle upon which this apparatus works. The cover of A having been opened, water is poured into the apparatus until it reaches to about an inch from the top; this water passes down A and fills the chamber B B, the lid of A is then closed. C represents a cylindrical chamber which extends from the front to the back of the apparatus, and is capable of holding a charge of about a pound of calcium carbide. Such charge having been placed in, and the door closed, it is only necessary to slightly open the screw-down valve K, when a small quantity of water soon reaches the carbide *via* I and J. The gas thus generated escapes up the tube D into the chamber A, the internal pressure from which displaces the water as shown in sketch, the water outside of this acting as a weight to dispel the gas. It may here be observed that as the water ebbs and flows into A, the top level of the water is disturbed, and through the small opening H air is drawn in or expelled to counterbalance the amount of gas which may at the time be in the chamber A. From A the gas passes by means of the tube E into the chamber F. Owing to the shape of the pipe E it will be understood that any moisture which may be present will fall to the bottom of the chamber F, which is packed with wool. From F the gas passes *via* the tube G to the burners, a controlling tap

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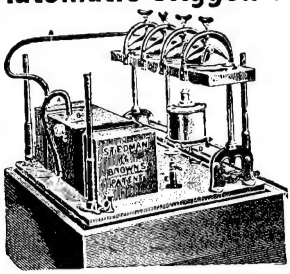

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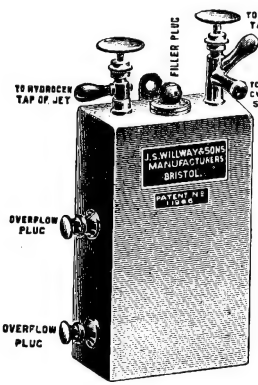

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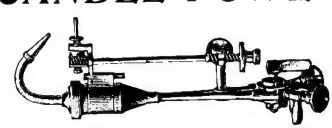

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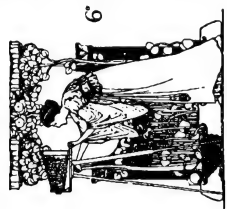

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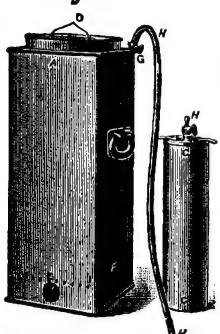

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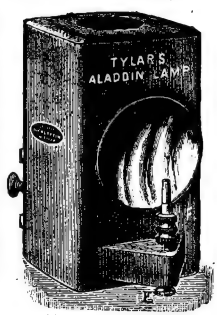

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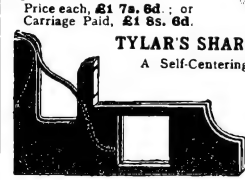

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being attached in the length of piping as seen in Fig. I. Being about to try the apparatus, we having had considerable experience with generators of different makes, decided to take due precautions when using an apparatus for the first time, and it is well that we did. A few moments after lighting up, large flames surrounded the entire apparatus which, after some little difficulty, we managed to put out; fortunately we were working the apparatus outside. In about an hour we took the apparatus indoors to examine it, and soon found out that the flare-up was occasioned by careless workmanship in the manufacture of

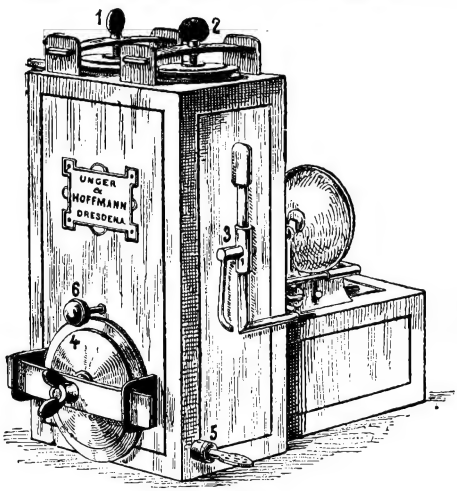


Fig. I.

this particular generator. The corner joints of the outlet pipe were not properly soldered, and certainly the tightness of the apparatus had never been tested before being sent out. We resoldered the joint and tried it again, when we found that the supply of gas was well maintained, although sometimes a little too much so. When this is the case the gas dispels all the water from A, and bubbling through the water, finds its way out at H. Out of doors this does not much matter, but if the apparatus is to be used indoors it is essential that some attachment be made at the opening H, and connection be established with the outside air by means of tubing to allow of the surplus gas to escape. Although the water inlet valve, K, has a fine adjustment, it is practically an impossibility to gauge the amount of unscrewing to exactly counterbalance the amount of gas used at the burners, and the storage capacity, A and F, is by no means large. The apparatus is fitted with two Bray's 00000 burners, set so that the flames are at right angles. A charge of a pound of carbide is estimated to last for two hours. Given that the apparatus is well made, and that an attachment is provided at H for slipping on a piece of rubber tubing to connect with the outside, this apparatus should prove of great use. We would suggest to the makers that the apparatus is well worth a little more attention in the making. The tap for controlling the gas

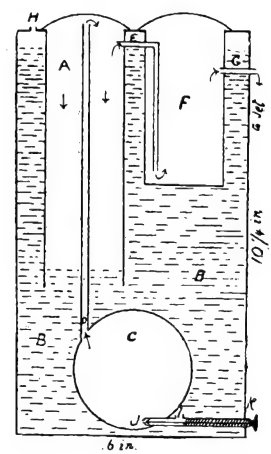


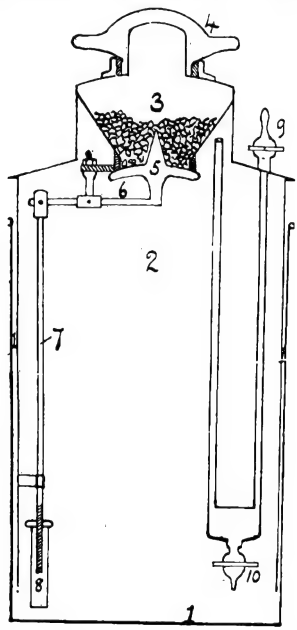
Fig. II.

is very crude—a hole in a piece of brass tubing with a plug inserted. The burners too require to be so fitted as to be capable of being raised or lowered for centering. However, the principle of the apparatus is, for a lamp of its kind, very good, and when made in proper style should meet with a good sale.

RELIANCE ACETYLENE GENERATOR.

In our last Annual Mr. W. Houldershaw, of Liversedge, described a new form of generator for acetylene gas. We understand that he is now prepared to supply the apparatus either in complete form, or the necessary castings should one be desirous of fitting it up himself. The generator is on the floating bell principle, and the bell portion is fitted up as shown in the

sectional sketch; 1 tank for water, 2 gasometer, 3 receptacle for the calcium carbide, 4 screw cap, 5 valve for regulating the fall of the carbide, 6 and 7 levers, 8 weight to counterbalance valve 5 together with weight of carbide charge, 9 gas exit tap, 10 tap for the withdrawal of moisture. As soon as the bell 2 descends the weight 8 touches the bottom and is pushed upwards, thus opening the valve 5 and allowing a small quantity of the carbide to fall into the



water, which by the evolution of the gas immediately causes the holder to ascend and consequently the valve to close. We understand that the complete outfit is sold for £1 17s. 6d.

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Kodak, Limited, has lately introduced a species of slow bromide paper termed Dekko, which can (without the use of a dark-room) be exposed, developed, and fixed in an ordinary room illuminated by artificial or weak daylight. This paper is made in four varieties, viz., glossy, matte, egg-shell matte, matte antique; and is specially adapted for the production of the highest-class work. In the ordinary light of the room the paper is placed in the printing-frame behind the negative, and exposed at a distance of, say, 6 inches from an ordinary gas burner for 3 to 5 minutes, according to the density of the negative. Long exposures and development with dilute developers tend to give warm blacks, while with short exposures and longer development with stronger developers blue-black tones can be imparted:—

METOL-HYDROQUINONE DEVELOPER.

Metol	8 grs.
Hydroquinone	30 grs.
Sulphite of soda (cryst.)	¾ oz.
Carbonate of soda (cryst.)	¾ oz.
Water	10 ozs.

Dissolve and add to each ounce of developer about two drops of a solution composed of bromide of potassium ½ oz., water 5 ozs. This developing solution is to be used without dilution.

To obtain a series of tones varying from red chalk through sepia and browns to a purple black make up the following developer:—

No. 1.

Citric acid	2½ ozs.
Ammonium carbonate	1 oz.
Water	10 ozs.

No. 2.

Sulphate of iron	2½ ozs.
Water	10 ozs.
Sulphuric acid	10 drops.

For use mix three parts of No. 1 with one part of No. 2.

Expose the print for three or four seconds to daylight until the image is just visible in the deepest shadows. This will upon development give a red brown colour; for brighter reds give a long exposure, while for purples expose for a shorter period.

To develop, first immerse the prints for a few moments in water, then pour off the water and flow over either of the above developers. The image will appear almost immediately, and when it is sufficiently developed rinse quickly and immerse in the following fixing bath:—

Hyposulphite of soda	4 ozs.
Alum (cryst.)	1 oz.
Water	16 ozs.

Fix for 15 minutes, keeping the prints separated. When fixed transfer to the washing tray.

Use fresh developer for each large print, or for each fresh batch of small prints which are developed at the same time.

Wash one hour in running water, or in 12 or 13 changes of water, giving 4 or 5 minutes to each change.

Dekko prints should be mounted wet. Lay the wet print face down on a table covered with oil or rubber cloth, or on a sheet of glass and squeegee off the surplus water, then brush over the back with starch paste; lay the print on the mount, then cover the print with a clean piece of blotting paper and rub into contact.

An olive green tone is obtained by the addition of extra bromide of potassium; the blue-black tone is obtained by using a minimum quantity of bromide of potassium. Any tone between blue-black and olive green may be obtained by the use of greater or less quantities of bromide of potassium solution.

During development care must be taken to avoid air bells, which sometimes form on the face of the paper when the developer is first flowed over. If this happens use more developer, and break the air bells with the finger.

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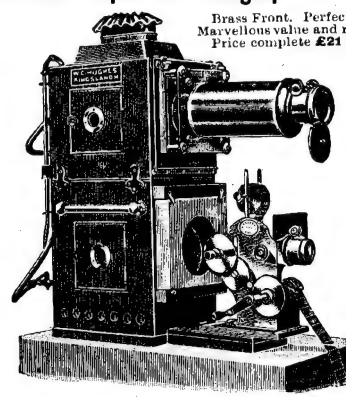

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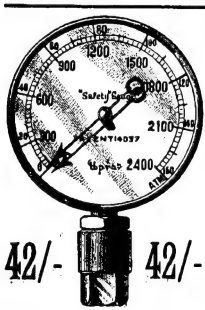

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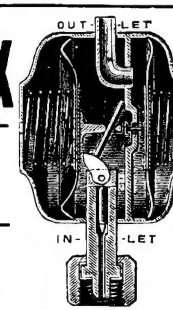

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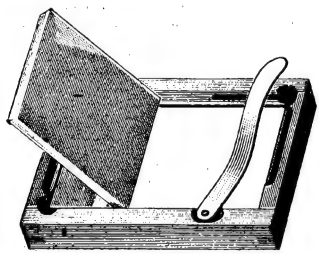
28, BARTLETT'S BUILDINGS, HOLBORN CIRCUS, LONDON E.C.

"PRIMUS" PRINTING FRAME.

A new printing frame has just been brought out by Messrs. Butcher & Sons, of Blackheath, one of its chief advantages being that when closed it is devoid of any projections. There are no metal catches for the springs, in this case each



being passed into a groove in the frame itself, as will be understood by the accompanying cut. This frame is well and strongly made, and owing to there being no projections, several frames can be stacked up without fear of falling.

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PATENT INTELLIGENCE.

The following List, relating to current Patent Applications, is compiled expressly for the "Optical Magic Lantern Journal" by W. P. Thompson & Co., Patent Agents, of 322, High Holborn, London, W.C., to whom all enquiries for further information should be addressed.

No. RECENT PATENT APPLICATIONS.

1130. 17th January, 1899. Albert Moore Barnes and Edward Cowper. Improvements in cameras and enlarging lanterns.

1132. 17th January, 1899. Albert Moore Barnes and Edward Cowper. Improvements in connection with photographic enlarging or projection apparatus.

1334. 19th January, 1899. William Latta Campbell. Improvements relating to electrically illuminated signs or advertisements. Complete.

1382. 20th January, 1899. Raoul Adrien Grimoin Sanson. Cinecosmorama or panorama with animated views.

1534. 23rd January, 1899. Henry Thomas Baker and Arthur Thomas Boon. An improved lantern and lamp. The lantern to burn colza or other vegetable oils. The table or hanging lamp for paraffin or the like oils.

1749. 25th January, 1899. John Bibbie and Henry Drivet. Improvements in acetylene lamps or generators.

1802. 26th January, 1899. John Edward Thornton and Charles Frederick Seymour Rothwell. Improvements in the means of viewing the enlarged pictures obtained by optical projection.

1815. 26th January, 1899. Ernest Thomas Saunders. Improvements in apparatus for projecting animated photographs on to a screen.

1876. 26th January, 1899. John Cooper Ashton. An improved apparatus for holding and viewing lantern slides, transparencies, negatives, and the like for various purposes.

2351. 2nd February, 1899. Charles Dunn, Albert Victor Taylor, and John Phillips. Improvements in cart, hand, and other such lamps and lanterns. Complete.

2372. 2nd February, 1899. Arthur Valentine Mortley. Improvements in apparatus for photographing moving objects upon a strip of moving transparent film and projecting pictures so taken.

2376. 2nd February, 1899. Arthur Benjamin Langham. Improvements in apparatus for displaying living pictures.

2528. 4th February, 1899. Emil Dönitz. Improvements in kinetoscopes and like apparatus.

2582. 4th February, 1899. William Spiers Simpson. Improvements connected with apparatus for displaying photos and transparencies generally cinematographically with coin freed appliances.

2630. 6th February, 1899. Harry Morrison. Improvements in or relating to cinematographs.

2771. 7th February, 1899. Raoul Türr. Improvements in the manufacture of incandescent bodies for illuminating purposes.

2828. 8th February, 1899. Theodor Klett. Improvements in lanterns.

2840. 8th February, 1899. William Adam Seymour. Improvements in apparatus for displaying animated and other picture advertisements and the like.

2954. 9th February, 1899. Charles Raleigh. Improved means applicable for use in taking photographic views in rapid succession or in presenting the same in like manner.

SPECIFICATIONS PUBLISHED.

Copies of the following specifications may be obtained by remitting 1/- for each specification to W. P. Thompson & Co., Patent Agents, 322, High Holborn, London, W.C.

1549 of 1898. Davidson and Lucas. Acetylene lamps.

21734 of 1898. Williams. Central draught lamp burners.

5538 of 1898. Dedecker. Apparatus for the automatic production of acetylene gas.

6006 of 1898. Percival. Gas generators for acetylene, hydrogen, and such like gases.

20417 of 1898. Lake (International Colour-Photo Company). Production of coloured pictures by photography.

29843 of 1897. Smith. Method of and apparatus for the production of acetylene.

7184 of 1898. Gurovits. Treatment of acetylene gas for preventing the deposit of solid carbon therefrom when burning.

Editorial Table.

CATALOGUE. — The new catalogue issued by the "Fowler" Acetylene Gas Company, of Bootle, Liverpool, is quite a work of art. It is printed on excellent paper, and several of the illustrations of their generators are printed in colour. This firm, although it deals in large generators, also makes a speciality of a neat and effective generator for the use of lanternists.

BIRMINGHAM OXYGEN COMPANY'S LIST.—The revised list brought out by this company contains particulars of their cylinders, stands, gauges, and other fittings pertaining to the compressed gas business; also some interesting notes on the medicinal use of oxygen. This company has extensive plant at the works at Saltley, Birmingham.

CATALOGUE.—From a list issued by Messrs. W. Thompson and Edgar G. Lee, c/o Ernest Scott and Mountain, Limited, Close Works, Newcastle-on-Tyne, we learn that this firm devote themselves to technical photography for architects, builders, etc., and that not only are they prepared to make negatives, but also half-tone blocks, architectural drawing duplicates, lantern slides, and the developing of plates and films.

"ARMSTRONG'S GUIDE TO PRACTICAL PHOTOGRAPHY," London: Dawbarn and Ward, Limited, 1s.—The author, Mr. T. N. Armstrong, has been well known for many years as an authority on photographic matters, and in this guide he gives valuable and instructive information in the easy flow of language which characterise his writings. In the 142 pages of this book will be found 39 chapters, each being a separate and concise essay upon the particular branch of the subject dealt with, and it is surprising that so much valuable information can be condensed into the allotted space.

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Notes and Queries.

T. J. P.—Without experimenting with the actual apparatus it is somewhat difficult to say where the defect lies, but we should be inclined to think that the relation of the set of the dissolver to the bore of the nipple had something to do with it. The simplest way would be to send the saturator and the dissolver to the makers, and allow them to try the two together, for, as you say, the apparatus works well in some hands. When using a saturator for dissolving, all tubes must be kept as short as possible; please note this. It is often necessary when a series of poppings take place to put out the light and allow a little gas to blow through, and on relighting there is no repetition of the noise. It is quite practicable to pass hydrogen through a saturator, and this plan is used by many operators, who consider that better results are thus obtained than by using the hydrogen direct. We have, as requested, forwarded your letter to Archdeacon Shears. Just before going to press your second letter came to hand. The answer to P.T. in February Journal did not refer to you at all, and your first letter only came to hand after that number had gone to press. We are glad to hear that you have overcome your difficulties and that you are now able to dissolve with your saturator.

John Hutchings.—If you obtain this Journal for November and December, 1895, you will find a long article on "Colouring Lantern Slides," which will help you.

W. H. Hales.—(1) The fault you complain of is not caused by the limes as you will probably have noticed, as with each brand you mention you got the same result. It is the compressed hydrogen that is at fault. When this has been standing in a cylinder it often causes, sooner or later, a black deposit on the lime, and this is the cause of the trouble. (2) The cylinder will require to be burnt out, so you had better call attention to this when next sending it to be charged. (3) Yours is no uncommon experience, for we often get letters of complaint similar to yours. Pure hydrogen, *i.e.*, in contradistinction to house gas, in cylinder is free from this fault, but is more expensive. (4) Yes, you can use compressed hydrogen with a blow-through jet. (5) 8 or 9 feet. (6) Coal gas with high-pressure jet. (7) We have not had an opportunity of trying the jet in question.

R. M.—If you find difficulty in making a connection between the cylinder and the regulator insert a small lead disc, and screw the regulator down on that. The disc need not be thick.

Jet writes:—Within the last 18 months new limelight jets have been invented with the mixing chamber lying in a horizontal position, instead of the old box pattern of the mixing chamber immediately below the nipple. Can you tell me the exact month in which this was introduced, as I made and used one nearly three years ago; yet I hear several persons have patented this lately? *Ans.*—You can rest easy about the position of chamber, for jets were made in this form in 1832, and the chamber was stuffed with strands of fine wire to prevent firing back.

Thomas Lawrence.—Your envelope was addressed to Mr. Hiddon, and duly posted.

A. L. Judson.—With respect to your query about theatrical limelight box, you will find full description with illustrations in this Journal for January, 1893, which can be obtained from the publishers.

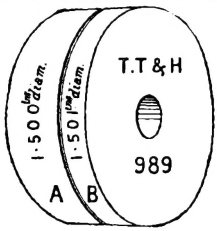
Arthur Bayley.—(1) We are unable to recommend any book suitable for your purpose, as we do not know of any. (2) About 50 candle-power each; there is very little difference between the two burners. (3) We will have to make some enquiries relative to the dyes and will reply again.

J. C. White.—(1) Sorry we cannot make the sketches full size, but by means of a pentagraph, or camera with plain glass and sheet of paper over instead of usual ground glass, the desired enlarged sketch can be readily made. (2) We cannot give you any information about the instrument other than that mentioned in the advertisement spoken of.

H. S.—Cover glass should be placed next the condenser. In the position to which you allude all writing projected on the screen would be reversed.

W. C. Hughes.—We will try the apparatus in a few days and report in next Journal.

Several articles, which are in type, have been held over for want of space.



When using this gauge

in making the settings of our lenses, to ensure the extreme accuracy already described, it is necessary to keep the temperature of the work equal to that of the gauge.

The operation of the turning tools tends, however, to heat the work, so we blow compressed air against it all the time to keep it down to gauging temperature.

We take this sort of care in all our operations of lens making, and this is why our lenses are accurate and serviceable tools, and comparatively inexpensive.

TAYLOR, TAYLOR & HOBSON. SLATE STREET WORKS, LEICESTER AND 10, CHARING CROSS ROAD, LONDON, W.C.

SANDS, HUNTER & Co., Photographic Apparatus and Lanterns,

NEW AND SECOND HAND, BY ALL THE BEST MAKERS.

Lanterns and Operator let out for evening entertainments for children, &c. Terms Moderate.

20, Cranbourne St., Leicester Square, London, W.C.

Dissolving View Magic Lanterns and Slides

Photographic Apparatus, Scientific Instruments and every description of miscellaneous property.

MR. J. C. STEVENS begs to announce that he holds Sales of the above, every Friday, at half-past twelve precisely, at his great Rooms, 88, King Street, Covent Garden, London.

Gentlemen wishing to include property in these Sales are requested to send particulars one week prior to sale.

LANTERN SERVICES.

New and Unique Series with Original Notes.

The Cross and Passion of our Lord—The Final Acts of our Lord—What think ye of Christ?—Let there be Light!—From the Manger to the Throne—The Messianic Idea and its Development—The Nativity and Childhood of Christ—The Life of Christ (two series).

Other series in preparation.

A SPECIALITY.—Full size pattern prints sent for inspection in advance for three stamps.

WRITE FOR PARTICULARS AT ONCE TO

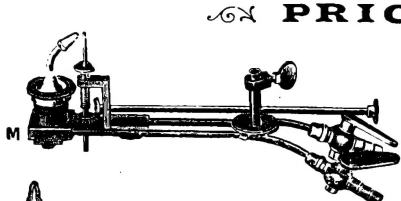
F. N. EATON, 1, Higher Lane, Aintree, LIVERPOOL.

Slides made from Clients' Negatives, Engravings, etc.

THE "INJECTOR" MIXED JET.

Patents 10,554 and 24,761/93.

PRICE 30s.



This is the only Mixed Gas Jet which will work at full power with coal gas taken direct from the town supply, and oxygen from a cylinder. In order to effect this the oxygen, on its way to the mixing chamber, is made to pass through the small Injector I in the sketch at a pressure of about 12 lbs. per square inch. In passing through the Injector it sucks a supply of coal gas from the pipe H, which is connected with the house pipe, and forces it forward through the short pipe T into the mixing chamber M. Here the mixed gases meet the baffle plate B, which has the two-fold effect of silencing the passage of the gases, and ensuring their complete admixture. The mixed gases then pass through holes in the edge of the plate, and so to the burner. The requisite pressure of oxygen is obtained in the ordinary way by a fine tap on the cylinder, or an automatic regulator fitted with a high-pressure spring to deliver at about 15 lbs. pressure.

Four seasons' experience has fully established the superiority of this Jet over all others. It will yield **THE FULL 1,800 TO 2,000 CANDLE-POWER** (so-called) of the ordinary mixed jet when taking its supply of coal gas direct from the town's pipe, or even from a bag *without any pressure at all.* If a town's supply is not available, it will work just as well with coal gas from a cylinder. We cannot see why ordinary mixed jets should be purchased which cannot offer these alternatives. As for blow-through jets, we do not know why they should be used at all, when with the same economy and convenience of working, the Injector Jet will give two or three times the light. By removing the Injector nipple the jet becomes an ordinary mixed jet. This can be done whenever it is desired to work with oxygen at low pressure, and coal gas from a cylinder.

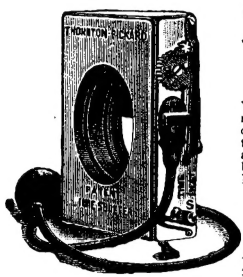
The working of the Jet is simpler than that of an ordinary jet. When the H tap is once adjusted, it does not need to be touched again when using town's gas. The turning off or on of the oxygen supply regulates automatically the supply of coal gas. This is a great convenience in actual use.

Most existing jets can be fitted with an Injector to enable them to take their coal gas supply from the house pipe.

The Jet will in certain cases be sent on approval on deposit of purchase price. Further particulars free on application to

MANCHESTER OXYGEN (Brin's Patent) CO., LTD.,
Great Marlborough Street, Manchester.

THE THORNTON-PICKARD



SHUTTERS.

SIMPLEST AND BEST. LARGEST SALE IN THE WORLD.
HAVE STOOD THE TEST OF TIME.

CAUTION TO PURCHASERS.

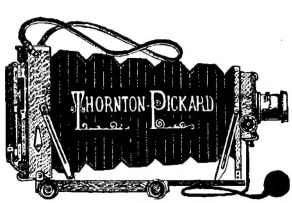
When purchasing a Shutter, purchasers should be careful to see that it bears our name, as goods made to **appear like ours in design** are sometimes offered for ours. Persons not familiar with the details of Shutter manufacture may easily be tempted by cheapness in price, and the assurance that the imitation is "similar and as good as the Thornton-Pickard." It is a simple matter to copy a DESIGN, but usually the IMITATION does not go beyond this; therefore, **Beware of Imitations.** Look for the name

THORNTON-PICKARD *All our goods bear our name. None genuine without.*

TIME AND INSTANTANEOUS SHUTTER.

Aluminium, from **12/6**; Standard Pattern, from **18/6**. Snap-Shot Shutter—Aluminium, from **9/-**; Mahogany, French Polished, from **10/-**. Stereoscopic and Focal Plane Shutters, all sizes.

The Thornton-Pickard CAMERAS



Possess unique features not to be found in any others. They are the outcome of practical experience, and combine every possible requirement. In design, construction and finish they are unequalled. In price they are most moderate. They can be used either as Hand Cameras or Stand Cameras, and contain numerous little devices and refinements which are not only very convenient, but also simple. The Patent Spring Focussing Screen, turn-table, double pinions, focussing scale and finder for hand-camera use, adjustments to the back and front, Time and Instantaneous Behind-Lens Shutter, and Patent Plate-Holders (which are ideal dark slides) form a combination only obtained under the Thornton-Pickard patents and system of manufacture. **Price from £2 13s. 6d.**

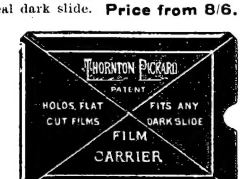
PLATE HOLDERS.

With Patent Aluminium Shutters and light trap. The shutters draw right out and have spaces on the front in which to write particulars of exposure. The plate is inserted in or removed from the Plate-Holder with the greatest ease. A spring bar at the end holds the plate, and can be drawn back by the finger as shown. Can be supplied for any camera.

This is an ideal dark slide. **Price from 8/6.**

FILM CARRIERS.

For holding sheet or cut films. Will fit any dark slide or plate-holder that a plate will fit. The lightest and strongest in the market. Price from **6d.** each. Made in all sizes from ¼-plate to whole plate.



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